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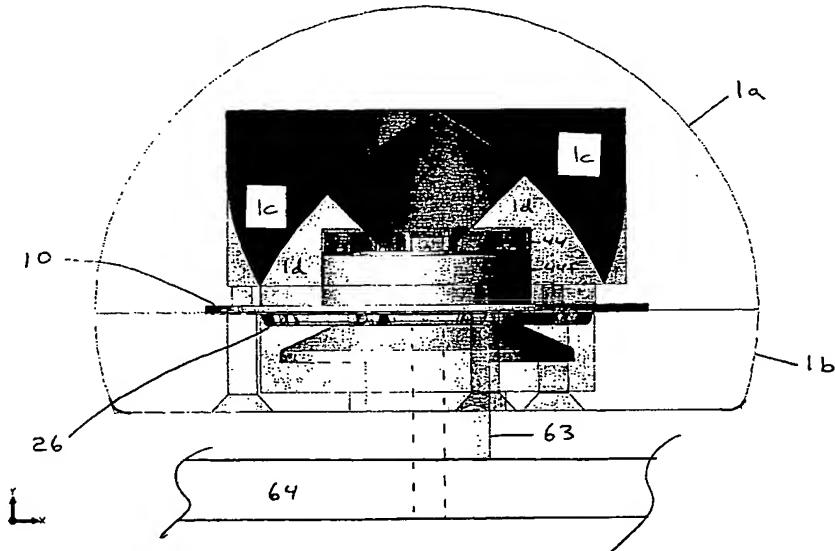
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(54) Title: MULTI-AXIS JOYSTICK AND TRANSDUCER MEANS THEREFORE

**WO 03/088204 A1**

(57) Abstract: The invention relates to improved multi-axis joysticks and associated multi-axis optical displacement measurement means. The displacement measuring means may include one or more light emitters (4) and one or more light detectors (5a-5f), preferably mounted in a planar hexagonal array. The relative position of an adjacent movable reflector assembly (2a-2f) can be measured in six degrees of freedom by variations in detected light amplitude. Various ergonomic configurations of six axis joystick embodiments which may be facilitated by the compact design of the transducer means are disclosed. Means for dynamically adjusting coordinate transformations for construction machinery control are also disclosed.